FIG. 1

TIME	PROCESS	APPARATUS A		APPARATUS B		APPARATUS C	
		DATA	UPDATE INFORMATION	DATA	UPDATE INFORMATION	DATA	UPDATE INFORMATION
t0		$\alpha 0(t0, t0)$	○	$\alpha 0(t0, t0)$	○	$\alpha 0(t0, t0)$	—
t1	UPDATE α IN APPARATUS C		○		○	$\alpha 1(t0, t1)$	—
t2	UPDATE α IN APPARATUS A	$\alpha 2(t0, t2)$	×		○		—
t3	SYNCHRONIZE BETWEEN APPARATUSES A AND B		○	$\alpha 2(t0, t2)$	○		—
t4	SYNCHRONIZE BETWEEN APPARATUSES A AND C		○		○	$\alpha 1(t0, t1)$	—
RESULT		$\alpha 2(t0, t2)$	○	$\alpha 2(t0, t2)$	○	$\alpha 1(t0, t1)$	—

FIG. 2

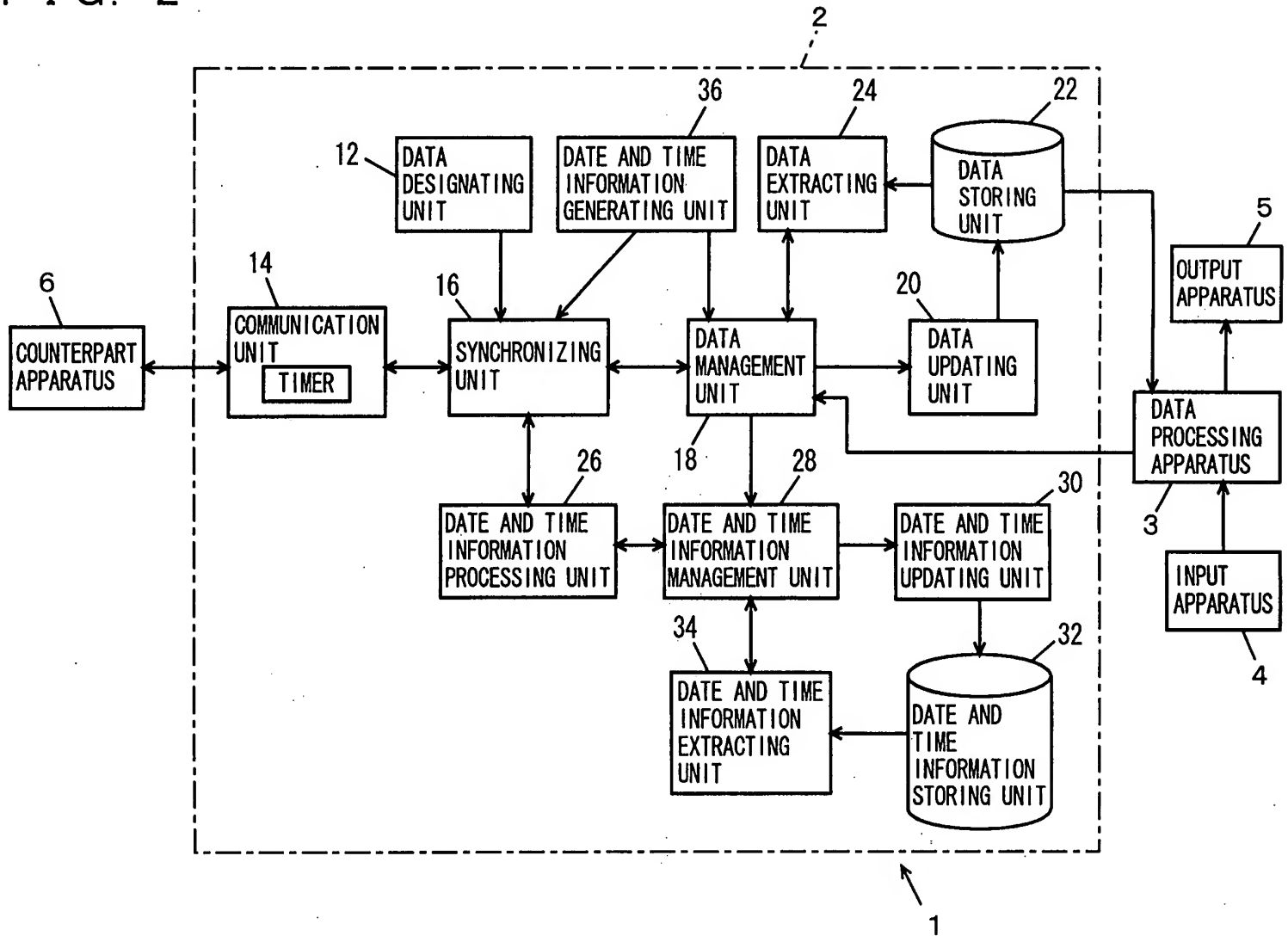

2
36
24
22
12
DATA DESIGNATING UNIT
DATE AND TIME INFORMATION GENERATING UNIT
DATA EXTRACTING UNIT
DATA STORING UNIT
5
OUTPUT APPARATUS
14
16
20
6
COUNTERPART APPARATUS
COMMUNICATION UNIT
TIMER
SYNCHRONIZING UNIT
DATA MANAGEMENT UNIT
DATA UPDATING UNIT
DATA PROCESSING APPARATUS
26
18
28
30
DATE AND TIME INFORMATION PROCESSING UNIT
DATE AND TIME INFORMATION MANAGEMENT UNIT
DATE AND TIME INFORMATION UPDATING UNIT
3
INPUT APPARATUS
34
32
DATE AND TIME INFORMATION EXTRACTING UNIT
DATE AND TIME INFORMATION STORING UNIT
4
1

FIG. 3

DATA BASE TYPE	DATA NUMBER	DATE AND TIME OF NEW CREATION	DATE AND TIME OF UPDATING	DATE AND TIME OF DELETION
ADDRESS BOOK	1	2000/01/01 00:01:23	2000/01/02 00:12:34	—
ADDRESS BOOK	2	2000/02/02 12:34:56	—	2000/02/22 21:10:00
SCHEDULE BOOK	1	2000/02/01 12:59:59	2000/02:02 10:00:00	2000/02/03 15:23:46

FIG. 4

APPARATUS NUMBER	APPARATUS IDENTIFICATION NUMBER	APPARATUS NAME	APPARATUS INFORMATION	DATA BASE TIME	DATE AND TIME OF SYNCHRONIZING PROCESS
1	123.456.789	PERSONAL PORTABLE TELEPHONE	PORTABLE TELEPHONE	ADDRESS BOOK	2000/01/01 00:01:23
2	000.111.222	OFFICE PC	PC	ADDRESS BOOK	2000/02/02 12:34:56
3	987.654.321	OFFICE SERVER	SERVER	SCHEDULE BOOK	2000/02/02 12:59:59

FIG. 5

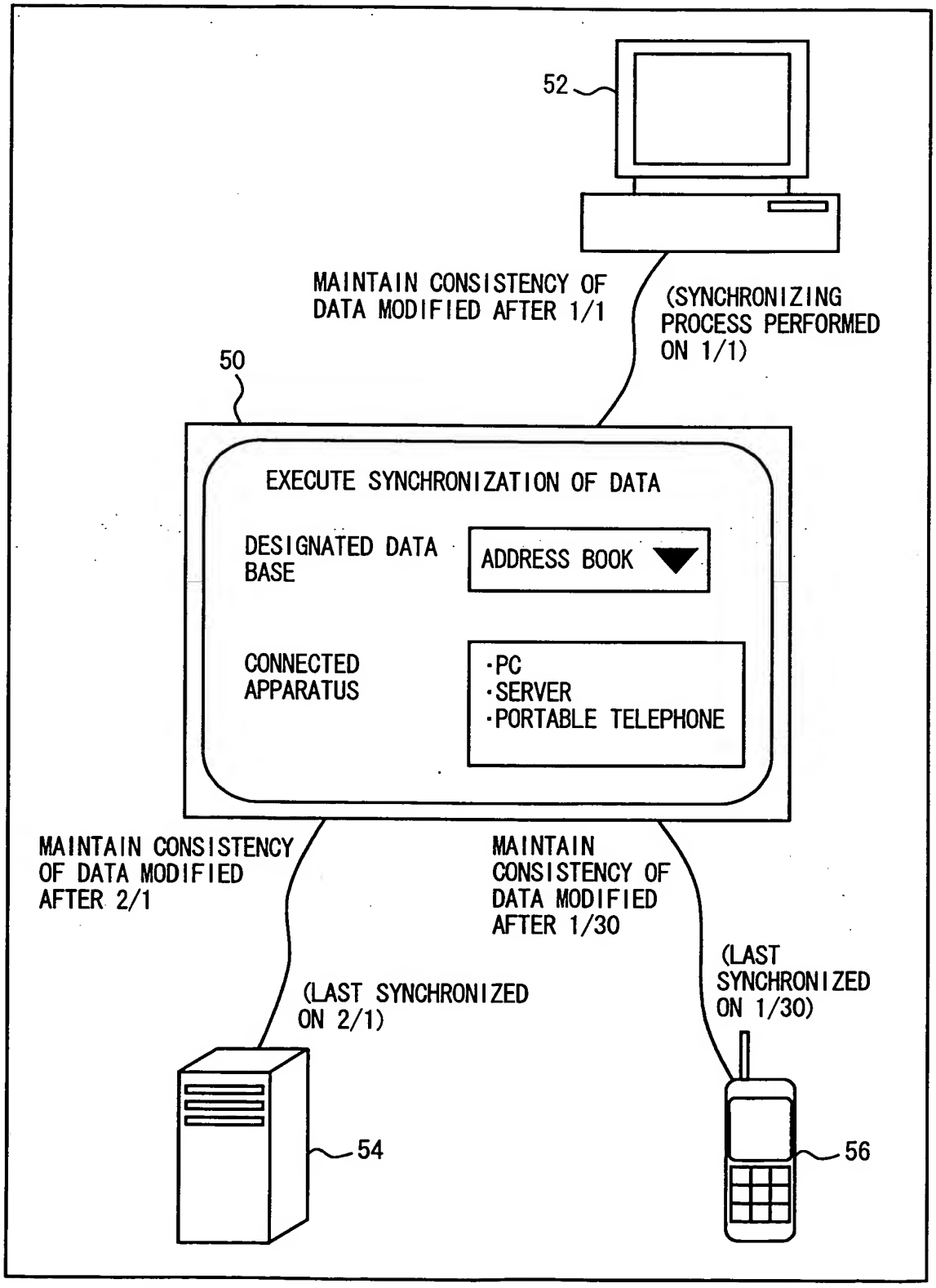
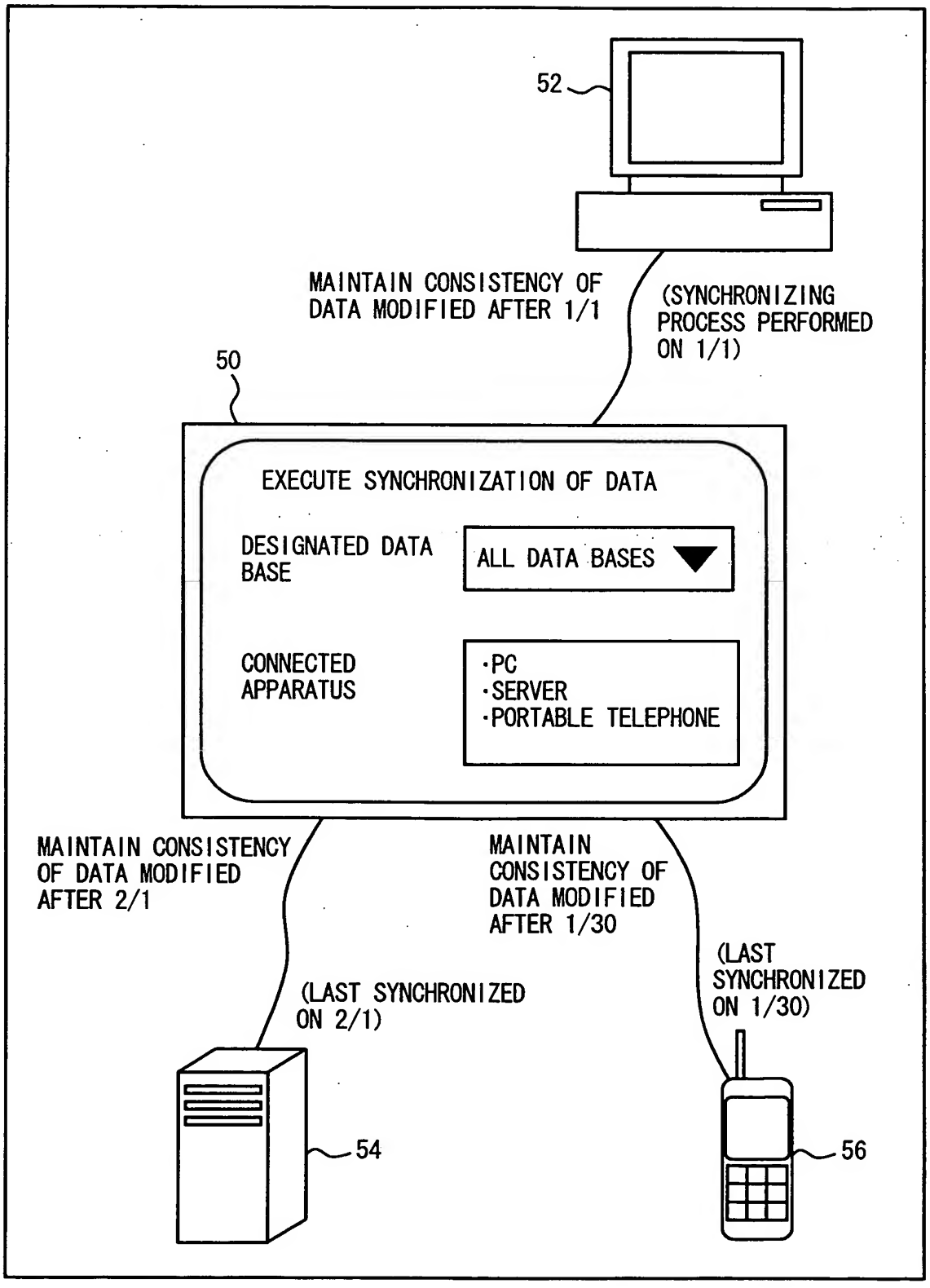


FIG. 6


52
MAINTAIN CONSISTENCY OF DATA MODIFIED AFTER 1/1
(SYNCHRONIZING PROCESS PERFORMED ON 1/1)
50
EXECUTE SYNCHRONIZATION OF DATA
DESIGNATED DATA BASE
ALL DATA BASES
CONNECTED APPARATUS
·PC
·SERVER
·PORTABLE TELEPHONE
MAINTAIN CONSISTENCY OF DATA MODIFIED AFTER 2/1
MAINTAIN CONSISTENCY OF DATA MODIFIED AFTER 1/30
(LAST SYNCHRONIZED ON 2/1)
(LAST SYNCHRONIZED ON 1/30)
54
56

F I G. 7

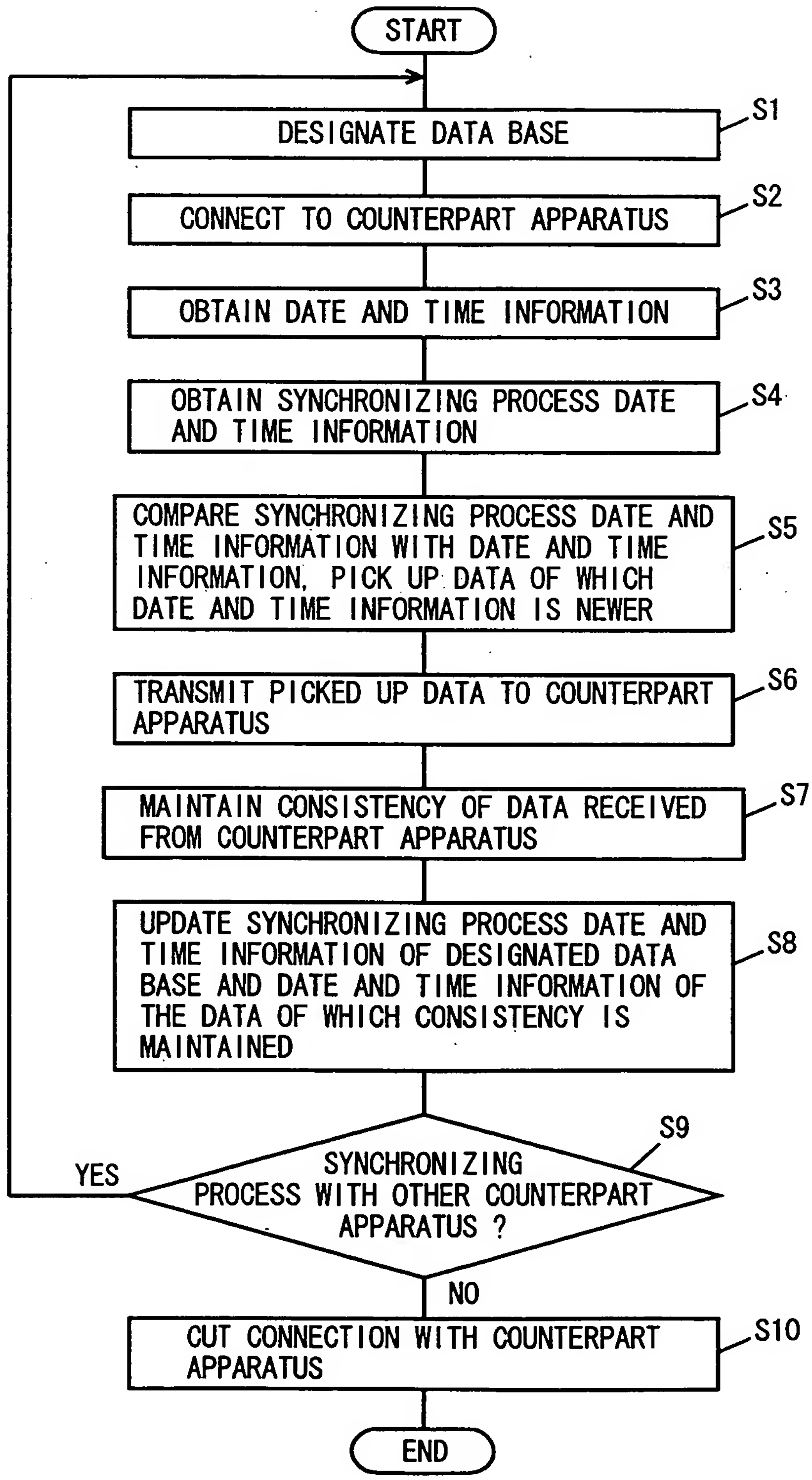

START
DESIGNATE DATA BASE
S1
CONNECT TO COUNTERPART APPARATUS
S2
OBTAIN DATE AND TIME INFORMATION
S3
OBTAIN SYNCHRONIZING PROCESS DATE AND TIME INFORMATION
S4
COMPARE SYNCHRONIZING PROCESS DATE AND TIME INFORMATION WITH DATE AND TIME INFORMATION, PICK UP DATA OF WHICH DATE AND TIME INFORMATION IS NEWER
S5
TRANSMIT PICKED UP DATA TO COUNTERPART APPARATUS
S6
MAINTAIN CONSISTENCY OF DATA RECEIVED FROM COUNTERPART APPARATUS
S7
UPDATE SYNCHRONIZING PROCESS DATE AND TIME INFORMATION OF DESIGNATED DATA BASE AND DATE AND TIME INFORMATION OF THE DATA OF WHICH CONSISTENCY IS MAINTAINED
S8
SYNCHRONIZING PROCESS WITH OTHER COUNTERPART APPARATUS ?
S9
YES
NO
CUT CONNECTION WITH COUNTERPART APPARATUS
S10
END

FIG. 8

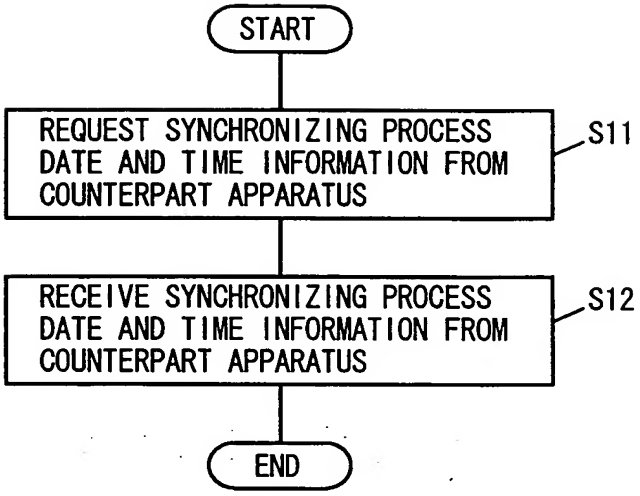
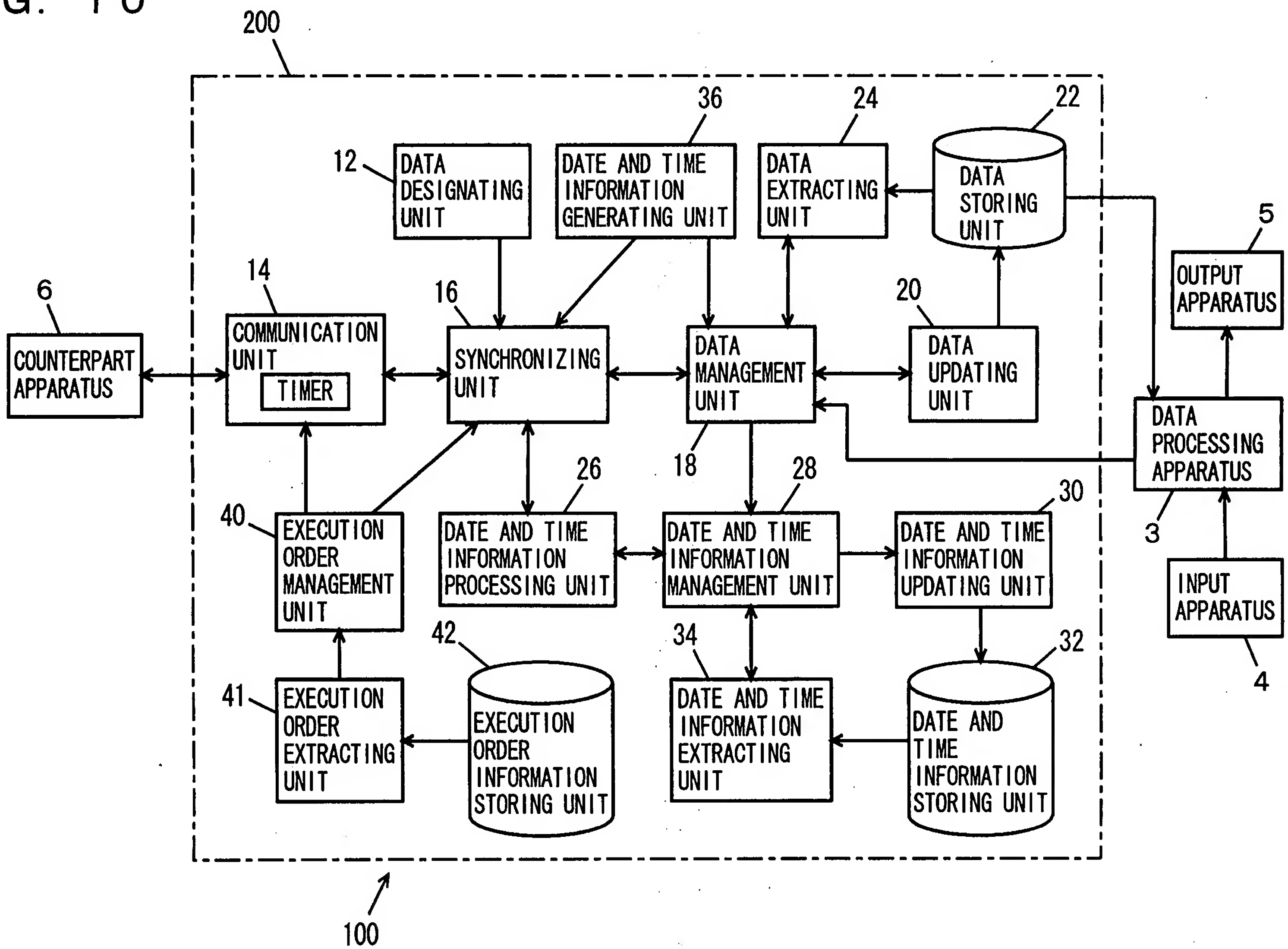


FIG. 9

TIME	PROCESS	APPARATUS A			APPARATUS B	APPARATUS C
		DATA	TIME POINT OF LAST SYNCHRONIZING PROCESS		DATA	DATA
			A - B	A - C		
t0	NEWLY CREATE DATA α IN APPARATUS A	α0(t0, t0)	—	—	—	—
t1	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND B	α0(t0, t0)	—	—	α0(t0, t0)	—
t2	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND C	α0(t0, t0)	t1	—	α0(t0, t0)	α0(t0, t0)
t3	UPDATE α IN APPARATUS C	α0(t0, t0)	t1	t2	α0(t0, t0)	α1(t0, t3)
t4	UPDATE α IN APPARATUS A	α2(t0, t4)	t1	t2	α0(t0, t0)	α1(t0, t3)
t5	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND B	α2(t0, t4)	t1	t2	α2(t0, t4)	α1(t0, t3)
t6	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND C	α2(t0, t4)	t5	t2	α2(t0, t4)	α2(t0, t4)
RESULT		α2(t0, t4)	t5	t6	α2(t0, t4)	α2(t0, t4)

F I G. 1 0


200
COUNTERPART APPARATUS
6
COMMUNICATION UNIT
TIMER
14
DATA DESIGNATING UNIT
12
SYNCHRONIZING UNIT
16
DATE AND TIME INFORMATION GENERATING UNIT
36
DATA EXTRACTING UNIT
24
DATA STORING UNIT
22
DATA MANAGEMENT UNIT
18
DATA UPDATING UNIT
20
OUTPUT APPARATUS
5
DATA PROCESSING APPARATUS
3
INPUT APPARATUS
4
EXECUTION ORDER MANAGEMENT UNIT
40
DATE AND TIME INFORMATION PROCESSING UNIT
26
DATE AND TIME INFORMATION MANAGEMENT UNIT
28
DATE AND TIME INFORMATION UPDATING UNIT
30
EXECUTION ORDER EXTRACTING UNIT
41
EXECUTION ORDER INFORMATION STORING UNIT
42
DATE AND TIME INFORMATION EXTRACTING UNIT
34
DATE AND TIME INFORMATION STORING UNIT
32
100

F I G. 1 1

NUMBER	APPARATUS IDENTIFICATION NUMBER	APPARATUS NAME	EXECUTION ORDER INFORMATION
1	123.456.789	PERSONAL PORTABLE TELEPHONE	1
2	000.111.222	OFFICE PC	3
3	987.654.321	OFFICE SERVER	2

FIG. 12

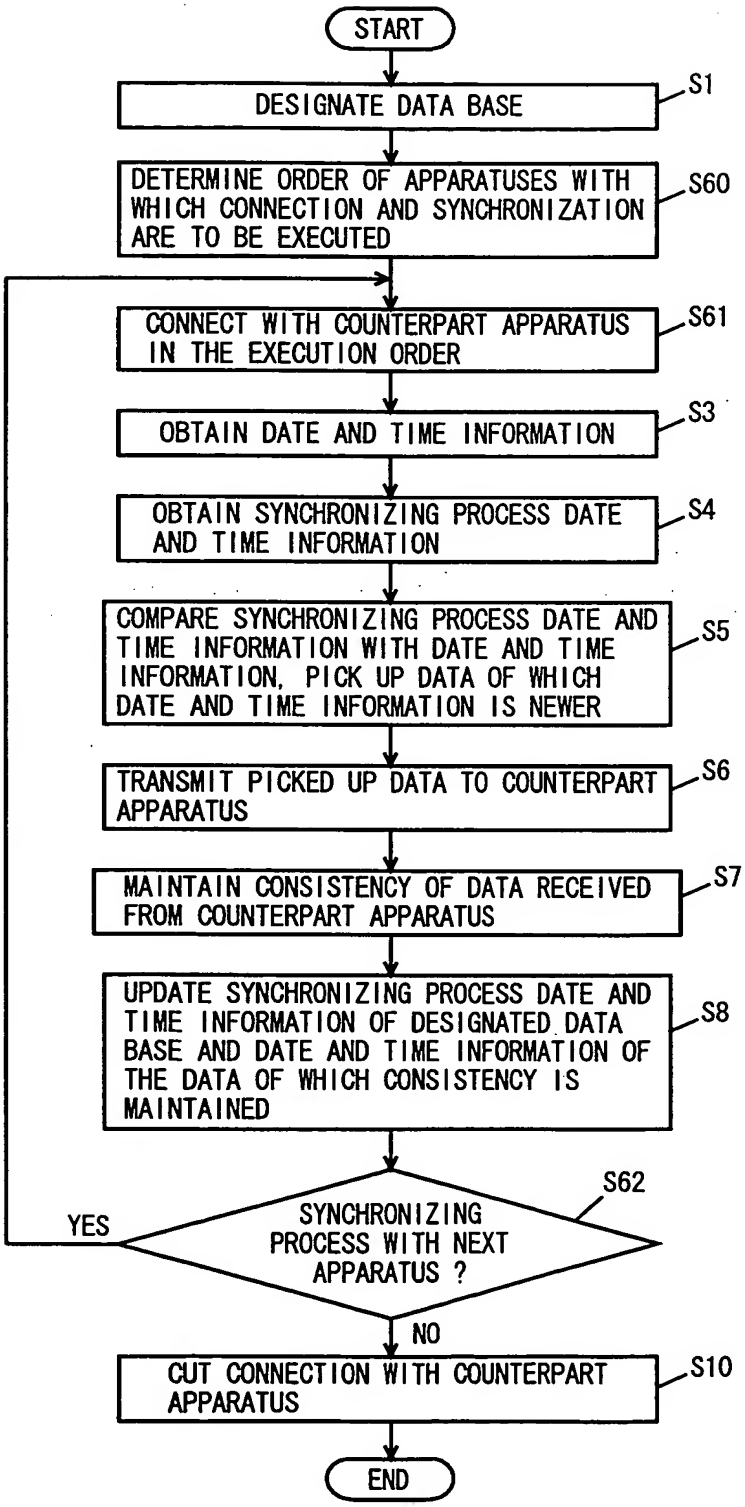


FIG. 13

TIME	PROCESS	APPARATUS A					APPARATUS B		APPARATUS C		APPARATUS D	
		DATA		LAST SYNCHRONIZING PROCESS TIME			DATA		DATA		DATA	
		DATA α	DATA β	A - B	A - C	A - D	DATA α	DATA β	DATA α	DATA β	DATA α	DATA β
t0	NEWLY CREATE DATA α IN APPARATUS A	α0(t0, t0)	—	—	—	—	—	—	—	—	—	—
t1	NEWLY CREATE DATA β IN APPARATUS B	α0(t0, t0)	—	—	—	—	—	β0(t1, t1)	—	—	—	—
t2	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND B	α0(t0, t0)	β0(t1, t1)	t2	—	—	α0(t0, t0)	β0(t1, t1)	—	—	—	—
t3	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND C	α0(t0, t0)	β0(t1, t1)	t2	t3	—	α0(t0, t0)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)	—	—
t4	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND D	α0(t0, t0)	β0(t1, t1)	t2	t3	t4	α0(t0, t0)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)
t5	UPDATE α IN APPARATUS C	α0(t0, t0)	β0(t1, t1)	t2	t3	t4	α0(t0, t0)	β0(t1, t1)	α1(t0, t5)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)
t6	UPDATE α IN APPARATUS A	α2(t0, t6)	β0(t1, t1)	t2	t3	t4	α0(t0, t0)	β0(t1, t1)	α1(t0, t5)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)
t7	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND B	α2(t0, t6)	β0(t1, t1)	t2	t3	t4	α2(t0, t6)	β0(t1, t1)	α1(t0, t5)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)
t8	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND C	α2(t0, t6)	β0(t1, t1)	t6	t3	t4	α2(t0, t6)	β0(t1, t1)	α2(t0, t6)	β0(t1, t1)	α0(t0, t0)	β0(t1, t1)
t9	SYNCHRONIZING PROCESS BETWEEN APPARATUSES A AND D	α2(t0, t6)	β0(t1, t1)	t6	t8	t4	α2(t0, t6)	β0(t1, t1)	α2(t0, t6)	β0(t1, t1)	α2(t0, t6)	β0(t1, t1)
RESULT		α2(t0, t6)	β0(t1, t1)	t6	t8	t9	α2(t0, t6)	β0(t1, t1)	α2(t0, t6)	β0(t1, t1)	α2(t0, t6)	β0(t1, t1)

FIG. 14